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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/600,888

08/15/2000

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P107242-0000

4637

7590

10/24/2006

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EXAMINER

TRINH, HOA B

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 10/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/600,888

Applicant(s)

SUZUKI ET AL.

Examiner

Vikki H. Trinh

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7, 9, 11 and 13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7, 9, 11 and 13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claims Status

Claims 7, 11, 13 are pending in the present application.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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3. Claims 7, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibata et al. (JP 04042582 A, applicant's cited abstract) (hereinafter Shibata) in view of Brunner (5,742,098) and further in view of Blonder et al. (4,914,667, hereinafter as Blonder).

Shibata discloses a light emitting diode comprising a pellet, a major front surface 52 which is made of a GaAsP (abstract, line 8) mixed crystal, characterized in that the major front surface is a rough surface 58, 56 (abstract), lines 13-16). However, Shibata does not explicitly state that the all of the side surfaces of the pellet are roughened on the sides and that the projections have diameter of the claimed range.

Brunner shows an LED 2 (col. 3, lines 21-26) having 3-side surfaces roughened 5 (see drawing figure 1 and abstract).

Furthermore, Blonder teaches an analogous device having a diameter or width of the projections (rib structure) 23 (fig. 2) about 3 micrometers which is within the claimed range (col. 4, lines 23-25) for precisely selecting the wavelength of the emitting device (col. 1, lines 60-65).

Therefore, as to claim 7, it would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Shibata with all side surfaces roughened, as taught by JP (4-116162), so as to increase the light emitting surfaces (Brunner col. 3, lines 21-26). Furthermore, the construction of Shibata in view of Brunner includes the projections with diameter, as taught by Blonder, for the advantage as mentioned in the above.

1. Claims 11, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibata in view of Brunner, and further in view of Blonder, as claimed in claim 7, and Nishiwaki et al. (59085868) (hereinafter Nishiwaki).

Shibata in view of Brunner and further in view of Blonder (hereinafter as Shibata) disclose the invention substantially as claimed in claim 7, except that Shibata does not explicitly state the etching solution with the compounds as claimed.

Nishiwaki et al. (59085868) teaching an etching agent using an etching agent such as an aqueous solution containing Br₂, nitric acid, hydrofluoric acid and acetic acid or I₂, nitric acid, hydrofluoric acid and acetic acid for low cost production. See abstract.

Therefore, as to claim 11, it would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Shibata with an aqueous etching solution containing the claimed compounds, as taught by Nishiwaki et al. (59085868), so as to form fine projections on the major front surface of the pellet and the advantage as mentioned in the above.

With respect to claim 13, the specific concentration range of the nitric acid, hydrofluoric acid, and acetic acid in the etching solution would have been obvious to one skilled in the art at the time the invention was made to provide a specific range of concentration, since it is prima facie obvious to an artisan for routine experimentation and optimization to create a specific range for the concentration because applicant has not yet established any criticality for the specific range.

Normally, it is to be expected that a change in temperature, or in thickness, or in time, would be an unpatentable modification. Under some circumstances, however, changes such as these may impart patentability to a process if the particular ranges claimed produce a new and unexpected result which is different in kind and not merely degree from the results of the prior art...such ranges are termed "critical ranges and the applicant has the burden of proving such criticality.... More particularly, where the general conditions of a claim are disclosed in the

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prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller 105 USPQ233, 255 (CCPA 19553.

2. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wegleiter (6,531,405) in view of Blonder.

Wegleiter (6,531,405) discloses a light emitting diode 18 (fig. 1) comprising a pellet 2, 3, 4 (fig. 1), a major front surface 4 (fig. 1) which is made of a GaAsP (col. 5, lines 18-28) mixed crystal, characterized in that the major front surface 4 is a rough surface (fig. 1). That all side surfaces (fig. 1) of the pellet are roughened, wherein the rough surfaces are formed with fine projections having a diameter (col. 4, lines 2-5).

However, Wegleiter does not explicitly teach the range for the diameter as claimed.

Blonder teaches an analogous device having a diameter or width of the projections (rib structure) 23 (fig. 2) about 3 micrometers which is within the claimed range (col. 4, lines 23-25) for precisely selecting the wavelength of the emitting device (col. 1, lines 60-65).

Therefore, as to claim 7, it would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Wegleiter with the diameter measurement, as taught by Blonder, for the advantage as mentioned in the above.

3. Claims 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wegleiter in view of Blonder, and further in view of Nishiwaki.

Wegleiter in view of Blonder discloses the invention substantially as claimed, except that the etching agent contains the list of materials as claimed.

Nishiwaki et al. (59085868) teaching an etching agent using an etching agent such as an aqueous solution containing Br₂, nitric acid, hydrofluoric acid and acetic acid or I₂, nitric acid, hydrofluoric acid and acetic acid for low cost production. See abstract.

Therefore, as to claim 11, it would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Wegleiter in view of Blonder with an aqueous etching solution containing the claimed compounds, as taught by Nishiwaki et al. (59085868), so as to form fine projections on the major front surface of the pellet and the advantage as mentioned in the above.

With respect to claim 13, the teaching of Wegleiter, Blonder and Nishiwaki for the specific concentration range of the nitric acid, hydrofluoric acid, and acetic acid in the etching solution would have been obvious to one skilled in the art at the time the invention was made to provide a specific range of concentration, since it is prima facie obvious to an artisan for routine experimentation and optimization to create a specific range for the concentration because applicant has not yet established any criticality for the specific range.

Response to Arguments

4. Applicant's arguments with respect to the pending claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Vikki Trinh whose telephone number is (571) 272-1719. The Examiner can normally be reached from Monday-Friday, 9:00 AM - 5:30 PM Eastern Time. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Mr. Wael Fahmy, can be reached at (571) 272-1705. The office fax number is 703-872-9306.

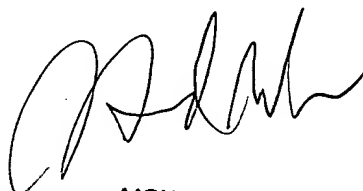
Any request for information regarding to the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Also, status information for published applications may be obtained from either Private PAIR or Public Pair. In addition, status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspro.gov>. If you have questions

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pertaining to the Private PAIR system, please contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

Lastly, paper copies of cited U.S. patents and U.S. patent application publications will cease to be mailed to applicants with Office actions as of June 2004. Paper copies of foreign patents and non-patent literature will continue to be included with office actions. These cited U.S. patents and patent application publications are available for download via the Office's PAIR. As an alternate source, all U.S. patents and patent application publications are available on the USPTO web site (www.uspto.gov), from the Office of Public Records and from commercial sources. Applicants are referred to the Electronic Business Center (EBC) at <http://www.uspto.gov/ebc/index.html> or 1-866-217-9197 for information on this policy. Requests to restart a period for response due to a missing U.S. patent or patent application publications will not be granted.

Vikki Trinh,
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HOWARD WEISS
PRIMARY EXAMINER